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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,479	01/09/2002	Viktors Berstis	AUS920011009US1	6080

7590 05/17/2005  
Kelly K. Kordzik  
5400 Renaissance Tower  
1201 Elm Street  
Dallas, TX 75270

EXAMINER

DHARIA, PRABODH M

ART UNIT PAPER NUMBER

2673

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/042,479	Applicant(s) BERSTIS, VIKTORS	
	Examiner Prabodh M Dharia	Art Unit 2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 11-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09-09-02</u> . | 6) <input type="checkbox"/> Other: _____  |

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1. **Status:** Receipt is acknowledged of papers submitted on May 11, 2005 under election, which have been placed of record in the file. Claims 1-10 are pending in this action and 11-54 are cancelled.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4,6,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chabrera et al. (6,329,963 B1) in view of Divelbiss et al. (US 2003/0112507 A1).

Regarding Claim 1, Chiabrera et al. teaches a method for producing a stereoscopic image from a display (abstract, Col. 1, Line 12-17) having N addressable pixels (Col. 3, Lines 58,59, the "N" is an arbitrary number or integer, Col. 29, lines 40-45) comprising the steps of: generating N pixels (Col. 3, Lines 58,59, the "N" is an arbitrary number or integer, Col. 29, lines 40-45) of a first frame of an image directed to a view of an object a user experiences when said object is observed by said viewer's right eye (Col. 31, Lines 51- 66, ); generating N pixels of a second frame of said image directed to a view of said object a user experiences when said object is observed by said viewer's left eye (Col. 31, Lines 51- 66, Col. 3, Lines 58,59, the "N" is an arbitrary number or integer, Col. 29, lines 40-45) comprising the steps of: generating N pixels

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(Col. 3, Lines 58,59, the “N” is an arbitrary number or integer, Col. 29, lines 40-45, Col. 31, Lines 24-34, Col. 31, Line 51 to Col. 32, Line 13, image light reflected off pixels having optical element are at two separate angles towards left and right direction); receiving light from said N pixels in N optical elements (Col. 14, Lines 31-35, Col. 14, lines 41-49) for selectively directing light of said N pixels (Col. 14, Lines 31-35) to said right eye in response to a first set of states of N corresponding control signals and to said left eye in response to a second set of states of said N control signals; directing light from each of said N pixels of said first frame of said image to said right eye in a first time period by applying said first set of states of said N control signals to said N optical elements (Col. 4, Lines 16-30, Col. 14, Lines 31-35, Col. 14, lines 41-54, Col. 3, Lines 58,59, the “N” is an arbitrary number or integer, Col. 29, lines 40-45, Col. 31, Lines 24-34, Col. 31, Line 51 to Col. 32, Line 13, image light reflected off pixels having optical element are at two separate angles towards left and right direction and controlled by controlling radiance pattern (Col. 3, Lines 13-34), Col. 32, Lines 43-53); and directing light from said N pixels of said second frame of said image to said left eye in a second time period by applying said second set of states of said N control signals to said N optical elements (Col. 4, Lines 16-30, Col. 14, Lines 31-35, Col. 14, lines 41-54, Col. 3, Lines 58,59, the “N” is an arbitrary number or integer, Col. 29, lines 40-45, Col. 31, Lines 24-34, Col. 31, Line 51 to Col. 32, Line 13, image light reflected off pixels having optical element are at two separate angles towards left and right direction and controlled by controlling radiance pattern (Col. 3, Lines 13-34), Col. 32, Lines 43-53).

However, Chiabrera et al. fails to recite or disclose specifically, viewer’s right eye and viewer’s left eye.

However, Divelbiss et al. teaches a method for producing a stereoscopic image from a display (page 5, paragraph 68, Lines 3-6) having N addressable pixels (page 4, paragraph 53, Lines 2-6, "N" is an integer) comprising the steps of: generating N pixels of a first frame (page 10, paragraph 165-167, page 5, paragraphs 68-70, page 21, paragraphs 192,193, page 13, paragraphs 193,194) of an image directed to a view of an object a user experiences when said object is observed by said viewer's right eye (Abstract, page 10, paragraph 165-167, page 5, paragraphs 68-70, page 21, paragraphs 192,193, page 13, paragraphs 193,194, page 18, paragraphs 218, 221,223, page 19, paragraphs 231, 232, page 20, paragraphs 244, page 21, paragraphs 255,256, page 22, paragraph 261-266); generating N pixels of a second frame of said image directed to a view of said object a user experiences when said object is observed by said viewer's left eye; receiving light from said N pixels in N optical elements for selectively directing light of said N pixels to said right eye in response to a first set of states of N corresponding control signals and to said left eye in response to a second set of states of said N control signals; directing light from each of said N pixels of said first frame of said image to said right eye in a first time period by applying said first set of states of said N control signals to said N optical elements (Abstract, page 10, paragraph 165-167, page 5, paragraphs 68-70, page 21, paragraphs 192,193, page 13, paragraphs 193,194, page 18, paragraphs 218, 221,223, page 19, paragraphs 231, 232, page 20, paragraphs 244, page 21, paragraphs 255,256, page 22, paragraph 261-266); and directing light from said N pixels of said second frame of said image to said left eye in a second time period by applying said second set of states of said N control signals to said N optical elements. (Abstract, page 10, paragraph 165-167, page 5, paragraphs 68-70, page 21, paragraphs 192,193, page 13, paragraphs 193,194, page 18, paragraphs 218, 221,223, page 19,

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paragraphs 231, 232, page 20, paragraphs 244, page 21, paragraphs 255,256, page 22, paragraph 261-266).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Divelbiss et al. into teaching of Chiabrera et al. to be able to have a projector displaying stereoscopic 3D images using one or more digital micro-mirror devices positioned into a plurality of columns and rows.

Regarding Claim 2, Divelbiss et al. teaches first and second time periods corresponds to one half the period of a frame rate such that said first and second frames of said image of said object appear as a stereoscopic image to said viewer (page 5, paragraph 68-70, page 15, paragraph 203, page 13, paragraphs 194,195,197,198).

Regarding Claim 3, Divelbiss et al. teaches the step of: selectively biasing said first and second sets of states of said N control signals to optimize said stereoscopic image perceived by said viewer (Abstract, (page 1, paragraphs 6, 7, page 3, paragraphs 28,31,33-36, page 5, paragraphs 68,69, page 20, paragraphs 244,247,250,253).

Regarding Claim 4, Divelbiss et al. teaches selectively adjusting biases of said first and second set of states to compensate for variations in said display (page 1, paragraphs 6, 7, page 3, paragraphs 28,31,33-36, page 5, paragraphs 68,69, page 20, paragraphs 244,247,250,253).

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Regarding Claim 6, Chiabrea et al. teaches optical element for selectively directing light of said N pixels of said image comprises: a prism/lense element oriented over each of said N pixels and coupled to an electrostatic element for modifying an orientation of said prism/lense element relative to a pixel of said display in response to one said N control signals. (Col. 4, Lines 16-30, Col. 14, Lines 31-35, Col. 14, lines 41-54, Col. 3, Lines 58,59, the "N" is an arbitrary number or integer, Col. 29, lines 40-45, Col. 31, Lines 24-34, Col. 31, Line-51 to Col. 32, Line 13, image light reflected off pixels having optical element are at two separate angles towards left and right direction and controlled by controlling radiance pattern (Col. 3, Lines 13-34), Col. 32, Lines 43-53, Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

Divelbiss et al. teaches electrostatic element bends a beam coupled to said prism/lense element (page 1, paragraph 6).

Regarding Claim 8, Chiabrea et al. teaches electrostatic element bends a beam coupled to said prism/lense element (Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

Divelbiss et al. teaches electrostatic element bends a beam coupled to said prism/lense element (page 1, paragraph 6).

4. Claims 5,7,9,10 rejected under 35 U.S.C. 103(a) as being unpatentable over Chabrera et al. (6,329,963 B1) in view of Divelbiss et al. (US 2003/0112507 A1).. as applied to claim1-4,6,8 above, and further in view of Umeyama et al. (5,490,015).

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Regarding Claim 5, Chiabrea et al. teaches each of said N optical elements for selectively directing light of said N pixels of said image comprises: a prism/lense element oriented over each of said N pixels and coupled to a piezoelectric element for modifying an orientation of said prism/lense element relative to each corresponding pixel of said display in response to one of said N control signals (Col. 4, Lines 16-30, Col. 14, Lines 31-35, Col. 14, lines 41-54, Col. 3, Lines 58,59, the "N" is an arbitrary number or integer, Col. 29, lines 40-45, Col. 31, Lines 24-34, Col. 31, Line 51 to Col. 32, Line 13, image light reflected off pixels having optical element are at two separate angles towards left and right direction and controlled by controlling radiance pattern (Col. 3, Lines 13-34), Col. 32, Lines 43-53, Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

However, Chiabrea et al. modified by Divelbiss et al. fails to recite piezoelectric element rotates said prism/lense element around a torsional support beam.

However, Umeyama et al. teaches piezoelectric element rotates said prism/lense element around a torsional support beam (Col.17, Line 13 to Col. 18, Line 14).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Umeyama et al. into teaching of Chiabrea et al. modified by Divelbiss et al. to be able to have a projector displaying stereoscopic 3D images using one or more optical element positioned and an extension/contracting function of a piezoelectric element and/or an electrostrictive element.



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Regarding Claim 7, Chiabrea et al. teaches piezoelectric element operates to bend a beam coupled to said prism/lense element (Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

Umeyama et al. teaches piezoelectric element rotates said prism/lense element around a torsional support beam (Col.17, Line 13 to Col. 18, Line 14).

Regarding Claim 9, Chiabrea et al. teaches piezoelectric element rotates said prism/lense element around a torsional support beam (Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

Umeyama et al. teaches piezoelectric element rotates said prism/lense element around a torsional support beam (Col.17, Line 13 to Col. 18, Line 14).

Regarding Claim 10, Chiabrea et al. teaches electrostatic element rotates said prism/lense element around a torsional support beam (Col. 7, Lines 31-63, Col. 33, Lines 13-16, Col. 31, line 49 to Col. 32, Line 29).

Divelbiss et al. teaches electrostatic element bends a beam coupled to said prism/lense element (page 1, paragraph 6).

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dolgoft et al. (5,900,982) High efficiency light valve project system.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668.

The examiner can normally be reached on M-F 8AM to 5PM.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

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May 11, 2005

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, flowing script.

**VIJAY SHANKAR  
PRIMARY EXAMINER**